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EDITORIAL

Vegetation Classification and Survey: five years and looking ahead

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Abstract

This editorial opens the sixth volume of Vegetation Classification and Survey (VCS), a gold open access journal of the International Association for Vegetation Science (IAVS). On occasion of the fifth anniversary of the start of the journal, we provide an analysis of the 119 articles published from 2020 to 2024, focusing on their content, geographic scope, article category and the collection they belong to, if any. For articles that performed a plot-based classification, we provide information on classification approach, plot size, importance value, taxonomic coverage, number of plots, and classification algorithm. We also analyze the bibliometric performance of VCS across the five years and predict a CiteScore of 3.6 and a Journal Impact Factor of 2.7 for 2024 (to be published in 2025). Using the Field-Weighted Citation Impact (FWCI) from the Scopus database, we identified the nine VCS articles published in the first five years that received at least twice as many citations as expected for their age and field. Next we present the four Editors' Choice papers of 2024, among which Naftal et al. (2024; Vegetation Classification and Survey 5: 127–151) received the Editors' Award. We conclude that VCS is on the right track, although we would like to encourage the submission of more classification papers based on large plot datasets, as well as methodological papers and comprehensive reviews.

Abbreviations: CCCN = Committee for Changes and Conservation of Names; FWCI = Field-Weighted Citation Impact; JIF = Journal Impact Factor; IAVS = International Association for Vegetation Science; VCS = Vegetation Classification and Survey.

Keywords

biome, Braun-Blanquet approach, EcoVeg approach, Field-Weighted Citation Impact (FWCI), methodology, Permanent Collection, phytosociology, Scopus, Special Collection, vegetation classification, vegetation plot, Web of Science

Introduction

Vegetation Classification and Survey (VCS) was founded five years ago as the third peer-reviewed journal of the International Association for Vegetation Science (IAVS), and its first gold open access journal (Jansen et al. 2020). We take advantage of this anniversary to reflect on the development and provide an outlook into the future. We start with analysing the published content in general terms (article types, collections) and then specifically concerning the methodological choices in the plot-based classification papers, which are the core of the journal. We also describe the journal's development in terms of bibliometric performance, including a presentation of the most-impactful papers so far. Then we present the four outstanding papers selected as the Editors' Choice in each quarter of last year

as well as the Editors' Award 2024 before we introduce the new members in the Editorial Board 2025. Synthetisizing these aspects, we conclude with some recommendations for the future development of the journal.

Content of the published articles

In the first five years of publication history VCS has published a total of 119 articles (Suppl. material 1). About one third were regular articles, one third belonged to one of the two permanent collections and one third to a special collection (Figure 1). The Permanent Collection 'Ecoinformatics' includes papers presenting vegetation-plot databases and other data sources relevant for vegetation classification as well as concepts, methods and tools for using these data. The Permanent Collection 'Phytosociological Nomenclature' focuses on nomenclatural issues of formal vegetation types of the Braun-Blanquet approach. Moreover, there were several special collections which focus on specific topics and which are open only for a limited time period, often in conjunction with a special session in a scientific conference (for details, see below).

VCS currently has 11 different article types, each with specific requirements (Figure 1). About half of the articles published in the last five years were Research Papers. There were also more than 10 Long Database Reports and Nomenclatural Proposals so far. The popularity of these two specific article types published in collaboration with the Global Index of Vegetation-Plot Databases (GIVD; Dengler et al. 2011; https://www.givd.info/) and the IAVS Group on Phytosociological Nomenclature (GPN; https://www.iavs.org/page/working-groups_gpn), respectively, based on specific agreements, arises probably from the fact that VCS is the only journal that offers these formats. The eight other article types were less frequently used. Five of them are available across regular articles and sections (Review and Synthesis, VCS Methods, Forum, Report, Editorial), while the three others are specific to one of these: CCCN Report and Short Communication in the Permanent Section Phytosociological Nomenclature, and Short Database Report in the Permanent Section Ecoinformatics. CCCN Report corresponds to the annual Report of the Committee for Changes and Conservation of names (CCCN).

Up to now, VCS has completed four special collections, while three are ongoing (Table 1). In 2024, 'Neotropical Vegetation' and 'African Vegetation Studies' were completed. The Special Collection 'Neotropical Vegetation' was edited by Gwendolyn Peyre (Colombia), Bianca Andrade (Brazil), Alejandro Velazquez (Mexico) and Melisa Giorgis (Argentina). It included five Research Papers and a Review and Synthesis paper on the South American terrestrial biomes, three Long Database Reports and an Editorial (Peyre et al. 2024). The Special Collection 'African Vegetation Studies' was edited by Reginald Tang Guuroh (Ghana), Miguel Alvarez (Germany), Leslie Brown (South Africa), Manfred Finckh (Germany), Ute Schmiedel (Germany), Gaolathe Tsheboeng (Botswana) and Jürgen Dengler (Switzerland). It contained seven Research Papers dealing with vegetation classification, mapping and modelling, plus an Editorial (Guuroh et al. 2024). This collection demonstrates that there are important classification studies ongoing in different parts of the continent to better understand the diversity and complexity of African vegetation, but it also provides evidence that much work remains to be done to achieve a comprehensive and internationally consistent vegetation classification (Guuroh et al. 2024). Additionally, the Special Collection 'Grasslands of Asia' is almost finished, waiting for the editorial, while the Special Collection 'Classification and Diversity of European Forests and Forest Fringes' is in progress. Finally, we would like to mention the new Special Collection 'Vegetation Classification

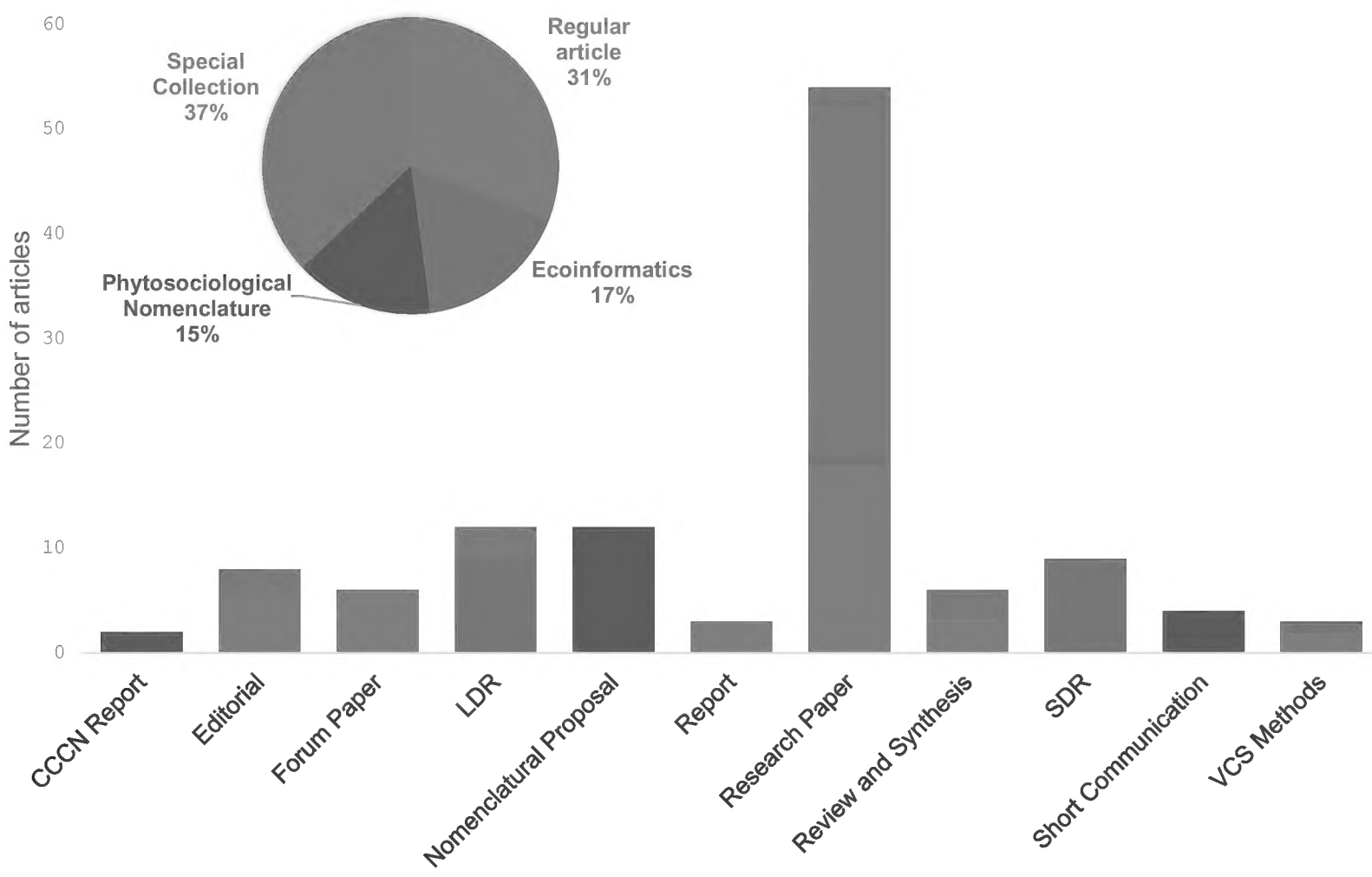

Figure 1. Distribution of the 119 papers in the first five volumes of VCS across article types with information on collection.

of Islands and Archipelagos' for which submission is still open (https://vcs.pensoft.net/collection/508/).

From the 54 **Research Papers** published in VCS in the first five years, 42 classified plant communities from the local to the continental scale, while eight applied already existing vegetation typologies for studies on plant diversity, long-term vegetation changes, vegetation mapping and niche modelling and four reviewed/revised the existing knowledge. While individual studies typically appear as Research Papers, there is the category **Review and Synthesis** for large overarching studies developing or revising vegetation typologies**.** Among them, we would like to highlight the article by Loidi et al. (2022), introducing a climate-based new biome classification system.

Classification of vegetation is developing not only due to the higher availability of data, but also thanks to the advancement and improvement of sampling methodology and classification algorithms. The article category **VCS Methods** is the venue for papers with a methodological focus. Three papers have been published so far in this category, dealing with sampling methodology (Janišová et al. 2021; Dengler and Dembicz 2023) and with the development of indicator values for European vascular plants (Dengler et al. 2023).

The joint analysis of Research Papers and Review and Synthesis articles shows that the majority of contributions in VCS focused on the development, application or revision of plot-based vegetation typologies leading to the delimitation of formal or informal plant communities or to their application (Figure 2). However, according to its scope, VCS is open to vegetation classification "at any organizational and spatial scale and without restriction to certain methodological

Table 1. Overview of the Special Collections in VCS, including those that are in progress.

Start year	End year	Title	# papers	Countries and supranational territories	IAVS subgroup(s)
2020	2022	Classification of grasslands and other open vegetation types in the Palaearctic	8	Austria, Kyrgyzstan, Poland, Spain, Switzerland, Tajikistan, Ukraine; Palaearctic region	Eurasian Dry Grassland Group (EDGG)
2021	2022	The "International Vegetation Classification" initiative: case studies, syntheses, and perspectives on ecosystem diversity around the globe	8	Australia, Chile, China, USA; Entire Europe, North America and South America	
2022	2024	African vegetation studies	8	Benin, Morocco, Namibia, South Africa	Regional Section for Africa
2022	2024	Neotropical vegetation	10	Argentina, Bolivia, Chile, Colombia, Costa Rica, Dutch Caribbean Islands, Ecuador, Guatemala, Mexico, Panama, Peru, Venezuela	Regional Section Latin America and the Caribbean
2022	2025	Grasslands of Asia	7*	Armenia, Iran, Kyrgyzstan, Tajikistan	Eurasian Dry Grassland Group (EDGG) & Regional Section Asia
2024	ongoing	Classification and diversity of European forests and forest fringes	3+	Austria, Italy	European Vegetation Survey (EVS)
2025	ongoing	Vegetation classification of islands and archipelagos	0+		European Vegetation Survey (EVS)

*including the editorial expected for early 2025.
+more than.

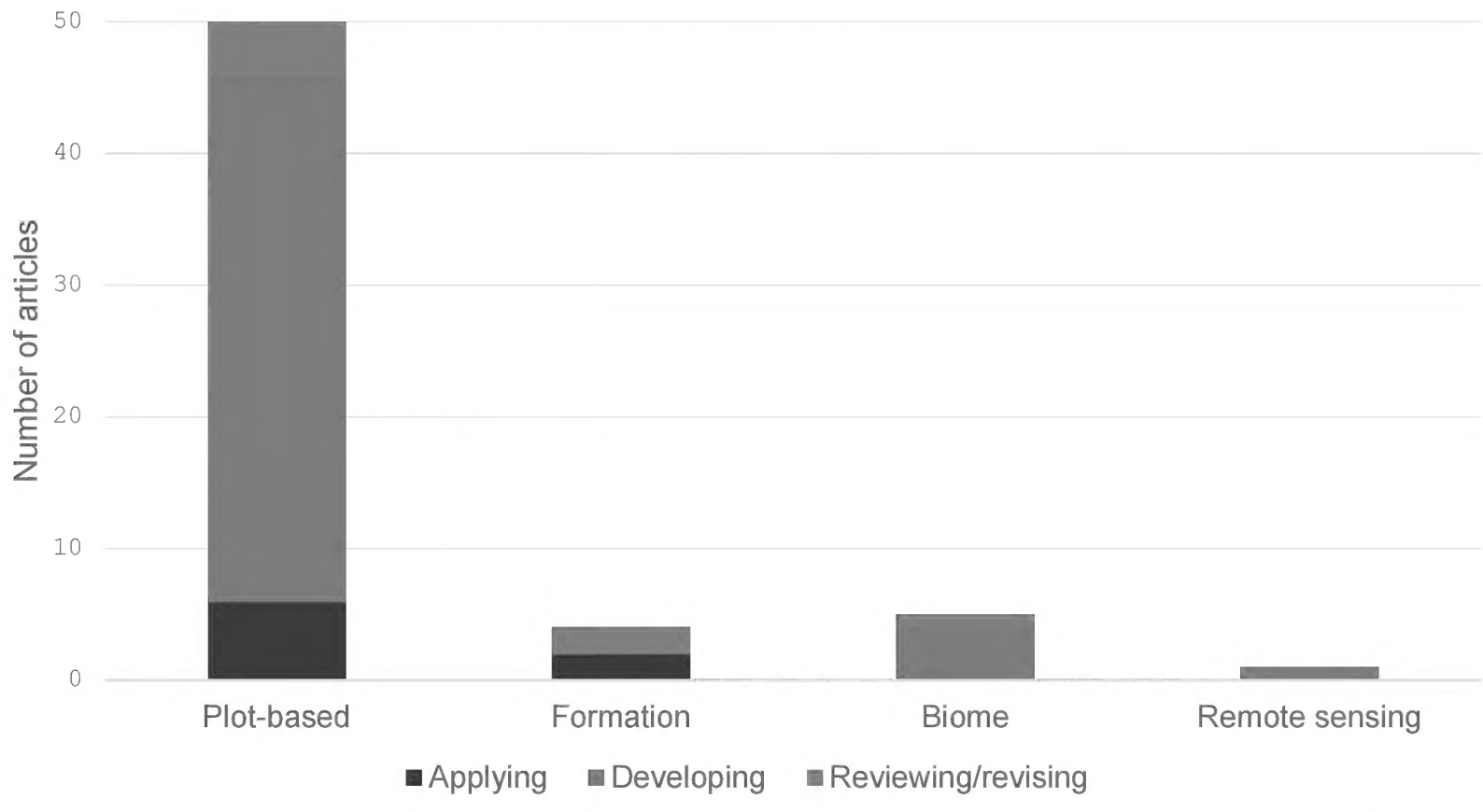

Figure 2. Distribution of 60 Research Papers and Review and Synthesis articles published in the first five years of VCS according to the methodological approach with indication of the paper aim.

approaches". This also includes synusiae, sigma associations, habitats, formations and biomes as well as remote-sensing based approaches, although some of these approaches have never been used in papers published in VCS. So far, VCS is primarily recognized for classical plant communities and biomes. It remains to be seen whether it will establish itself as a publication venue for other approaches and scales or if some of these have lost relevance.

Methodological aspects in plot-based classification papers

In this section we will provide information on several methodological features of the 40 papers published in VCS that develop a plot-based vegetation typology. These 40 papers were distributed over all continents (Figure 3; details in Suppl. material 1). However, absolutely and in relation to the area, Europe was most represented, while Australasia and South America had lower numbers per area, and Asia, Africa and North America were least represented.

From the 40 studies, 23 used the Braun-Blanquet approach (Braun-Blanquet 1964; Westhoff and van der Maarel 1973) for naming the communities, seven the EcoVeg approach (Jennings et al. 2009; Faber-Langendoen et al. 2014), while ten used informal names, not referring to any formal classification system (Figure 3). The two formal approaches were largely separated in space, with Asia being the only continent where we had studies with both the Braun-Blanquet and EcoVeg approach (Figure 3), but in different countries. Informal names were mostly used in countries that lack past-approaches at broad-scale classification. However, any national classification system essentially was built on the pre-existing local to regional classification systems. As VCS Chief Editors we would thus like to encourage authors from countries without previous large-scale classification experience to propose formal names, at least for the lower ranks, already in local to regional studies, following either the Braun-Blanquet or EcoVeg approach to facilitate future regional to continental syntheses.

Regarding procedural elements (*sensu* De Cáceres et al. 2015), **plot size** varied both within and between studies, from 1 m^2 to 10,000 m^2. 30 out of 40 classification studies used only one plot size, as recommended by Dengler et al. (2009). However, the applied standard grain size varied widely between studies, from 1 m^2 in some azonal communities to 1000 m^2 used for any type of vegetation in Namibia. The rest of surveys used different plot sizes, in half of them intentionally sampled with varying plot size, while in the other half these data were derived from vegetation plot databases. Most of the latter studies excluded outlier plot sizes to avoid biased classification results (Dengler et al. 2009). We can conclude from this overview that the use of a single plot size is becoming more and more widespread in vegetation surveys, but there is still a need for international standardisation. Moreover, when using legacy data from large vegetation-plot databases (Chytrý et al. 2016; Bruelheide et al. 2019) strategies are needed that (a) account for different plot-size preferences in different countries and (b) find methodological solutions that are less sensitive to different plot sizes than most of the current approaches.

Plot-based vegetation surveys usually indicate an **importance value** estimated or measured for each species in the plot (Dengler et al. 2008), which is crucial not only for vegetation classification, but also for ecologic studies and habitat monitoring (Dengler and Dembicz 2023). For that purpose, often simplified scales of cover and/or abundance (e.g., number of individuals/ramets) are used. Many different types of such ordinal scales have been used and are still in use in various parts of the world (Peet and Roberts 2013). Among the articles published in the five first volumes of VCS the Braun-Blanquet cover-abundance scale (Braun-Blanquet 1964) in its different variants was the most used scale, which is consistent with the high proportion (66%) of plots using this scale in the global vegetation-plot database sPlot (Bruelheide et al. 2019). Other scales with predefined classes were only rarely used in the papers published in VCS (Figure 4). However, the direct estimation of species cover in percent is becoming more and more popular, especially since the application of numerical methods has become standard in plant community ecology. This is

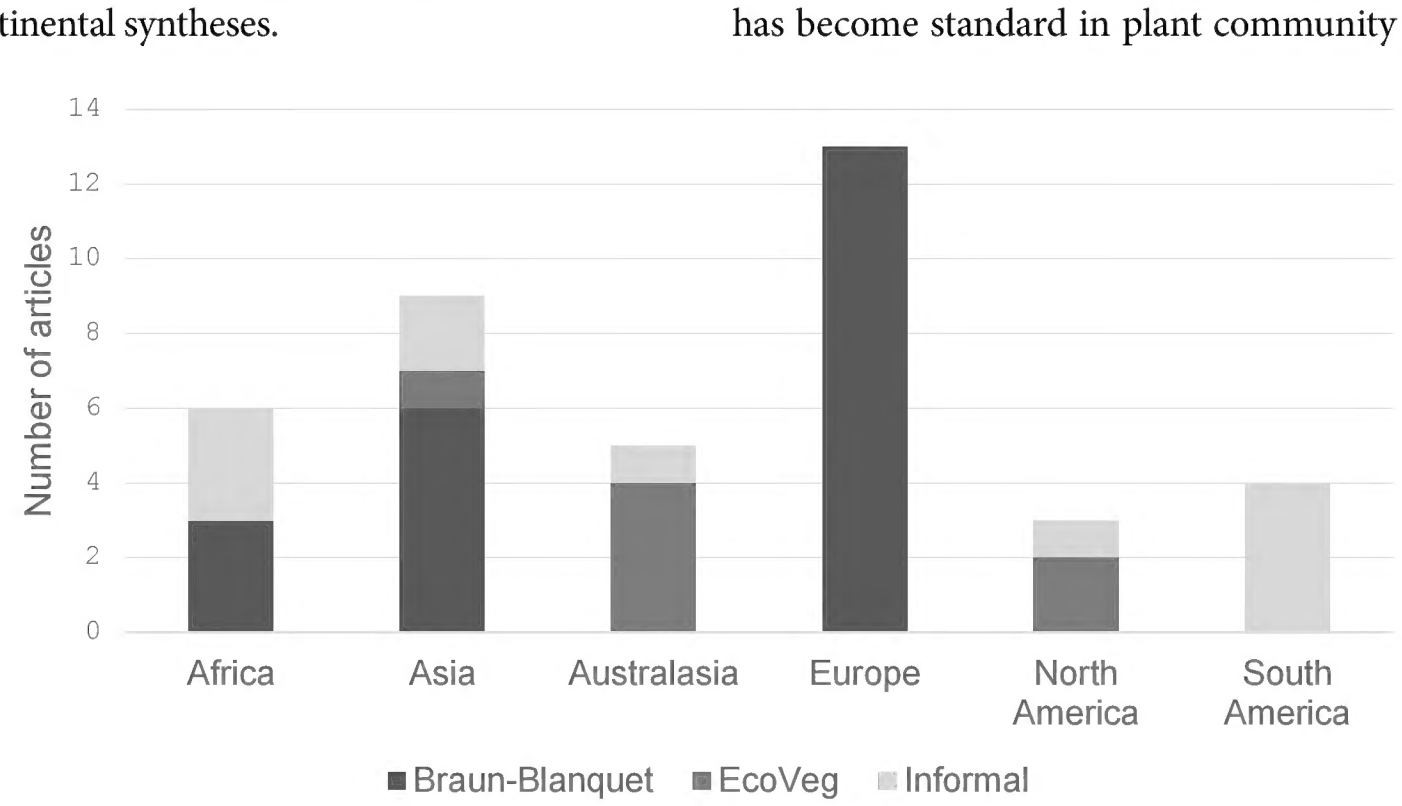

Figure 3. Distribution across continents of the 40 plot-based studies developing a vegetation classification published in VCS with indication on classification approach.

also reflected in the papers published in VCS using percentage cover as importance value. We expect that the direct estimation of species cover in percent will become more prevalent in future papers, as it has been demonstrated that the use of ordinal indices introduces a relevant additional error to the data when back-transformed to percentage cover for numerical analysis (Dengler and Dembicz 2023). However, in the future, broad-scale syntheses typically will still have to rely on historical plots stored in large vegetation-plot databases like the European Vegetation Archive (EVA; Chytrý et al. 2016) and the global vegetation database sPlot (Bruelheide et al. 2019), which predominantly contain plots collected on ordinal scales. In our opinion, the use of these legacy data thus should come along with some methodological strategies to mitigate the non-negligible potential bias caused by the back translation of ordinal values to mean cover values. In any case, the best long-term strategy to avoid this bias is that vegetation scientists sample with direct percentage cover whenever possible.

Although vegetation plots ideally include the complete list of plant species occurring in the plot, including bryophytes, lichens and macroalgae (Dengler et al. 2008), with the maximum possible **taxonomic resolution** (species or subspecies level), this is not usually achieved except for some particular vegetation types where cryptogams have major importance, such as mires, tundra and boreal forests. This fact is also reflected in the 40 plot-based papers published in VCS that develop a vegetation classification, of which 31 included only vascular plants, and some only included a subset of vascular plants (e.g., trees and tall shrubs). Only nine studies included non-vascular taxa, some from vegetation types where bryophytes and/or lichens are crucial components, such as fens, springs and arctic tundra, but also a few studies in grasslands. Although we acknowledge the big challenge entailed by the inclusion of non-vascular taxa, we would also like to express our preference for such comprehensive studies.

The number of plots used in these 40 papers developing a plot-based vegetation typology greatly varies from a few dozen to several thousand (Figure 5). Mean plot number was 2,395, but median was only 248 plots per study. While we welcome manuscripts based on small numbers of plots coming from areas that are still *terra incognita*, we expect to receive revised classifications based on larger numbers

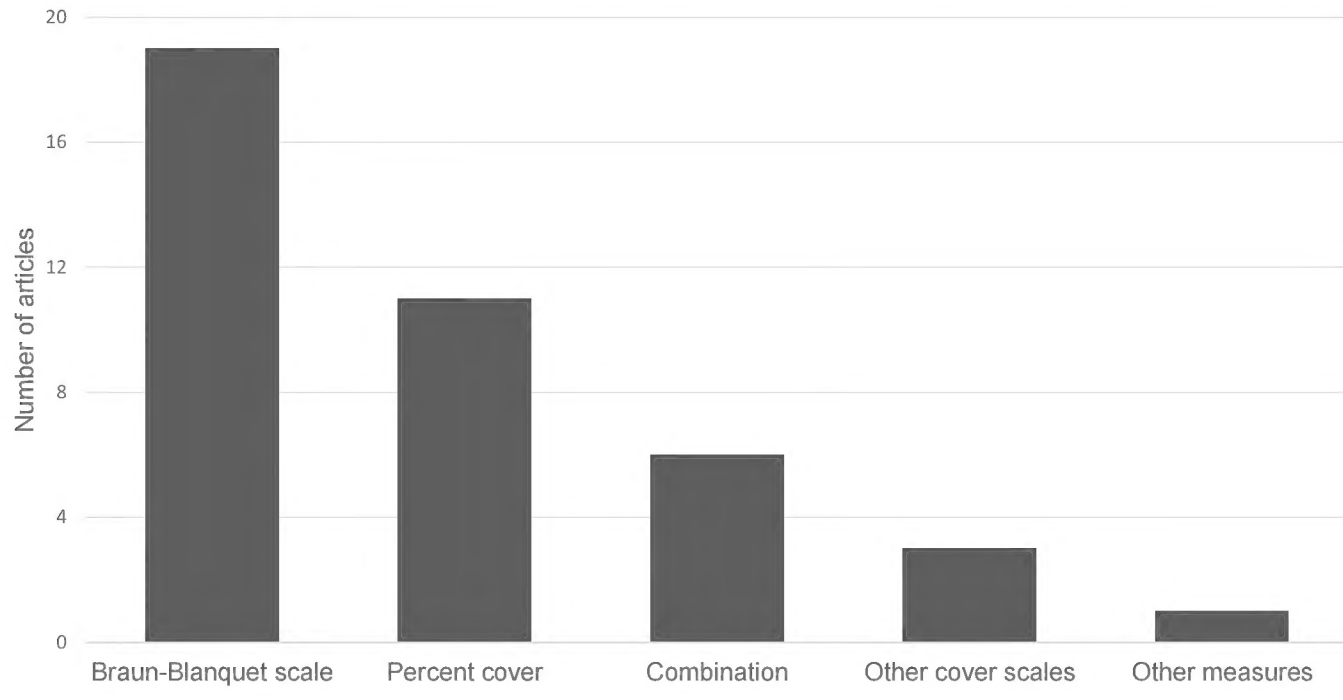

Figure 4. Distribution of different methods to estimate species importance in vegetation plots in the 40 plot-based studies developing a vegetation classification. "Other cover scales" include the Dafor and Drude scales, as well as an *ad hoc* scale with ten percent classes. "Combination" refers to studies where the dataset included both plots sampled with one of the many variants of the Braun-Blanquet scale and plots sampled using direct percent cover. "Other measures" includes plots where the basal area of trees was measured.

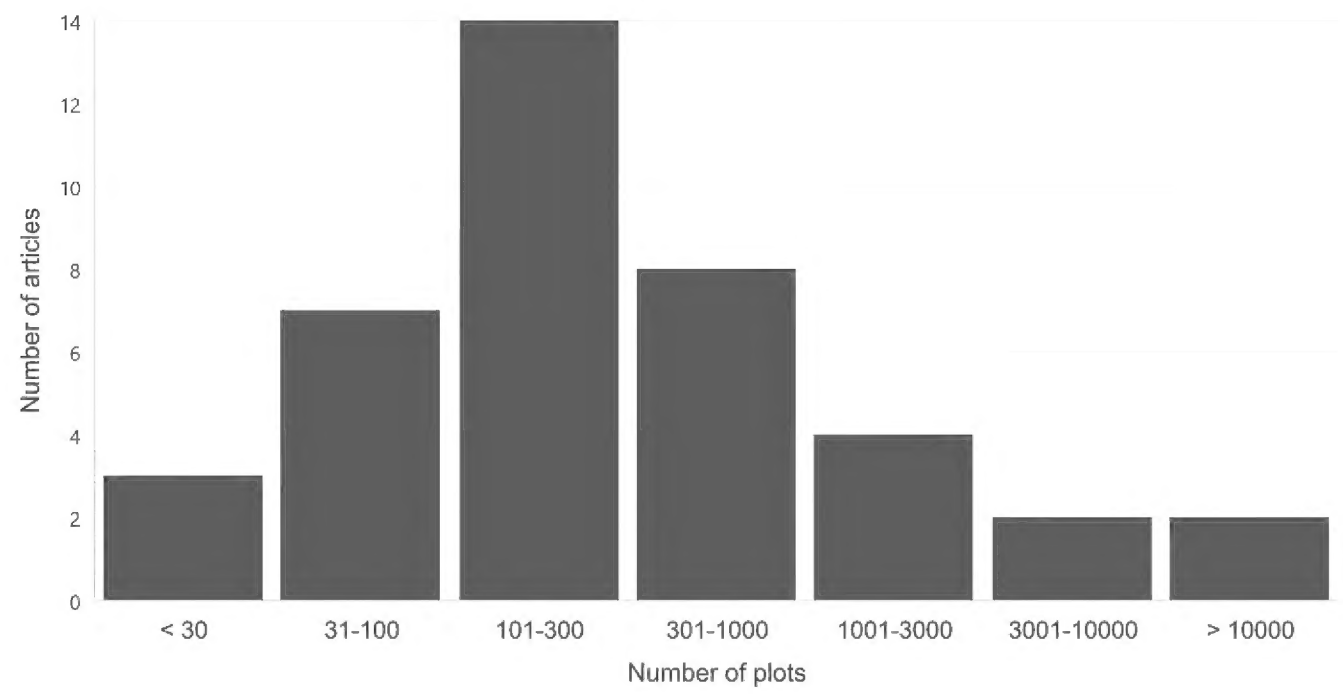

Figure 5. Histogram showing the distribution of number of plots of the 40 Research Papers developing a plot-based classification typology in VCS.

of plots from regions that already have comprehensive classification systems.

Regarding the **classification algorithm**, all plot-based vegetation classification papers published in VCS used unsupervised classification methods, sometimes combined with supervised approaches (expert systems). These unsupervised methods were in the vast majority hierarchical, both agglomerative (mostly beta-flexible), and divisive (mostly TWINSPAN, ISOPAM in a few papers), although the use of TWINSPAN was sometimes combined with expert systems, agglomerative clustering, or others. In most papers, the **diagnostic species** were defined by the phi coefficient (Chytrý et al. 2002; Tichý and Chytrý 2006), while four papers applied IndVal (Dufrene and Legendre 1997; De Cáceres et al. 2012), a few used other methods, or simply did not provide information on diagnostic species of the distinguished vegetation types. The proportion of papers not listing diagnostic species was very low (5 out of 40), and we emphasize that plot-based classification papers not providing diagnostic species might be rejected in the future.

It is a standardized procedure in vegetation classification to provide a **synoptic table** where the floristic composition of the vegetation units is summarized by means of the percent frequency of the species in each unit. This information is usually complemented by the indication of diagnostic species, either by providing the phi or Indval value or by shading the frequency values. A total of 38 out of 40 plot-based papers developing a vegetation classification provided a synoptic table, 36 with percent frequencies and 29 with information on diagnostic species. A few papers provided additional information on mean cover values. We consider the provision of synoptic tables with information at least on the frequency and diagnostic value of the species a basic requirement that manuscripts submitted to VCS should include.

Bibliometric performance

We extracted a range of bibliometric variables for all 119 articles published so far and subjected them to some basic statistical analyses (all raw data are accessible in Suppl. material 1). The number of articles per year remained around 24 with minimal variation between years, while the page number showed a marginally significant increase by 30 pages per year (Table 2). Taken together, the mean article length significantly increased from 10.0 in 2020 to 14.4 in 2023 and 2024 (Table 2).

Of particular importance to many readers are the main journal-based citation metrics released by the two big global literature databases, Journal Impact Factor (JIF) from Web of Science and CiteScore from Scopus. Even though the content of VCS is included in both databases from the first article onwards, the policy of the databases is to release the first "official" metrics only after several years. In Scopus, VCS started with a CiteScore of 2.0 for 2022, followed by 2.5 for 2023 (Table 2). By contrast, the first "official" JIF is expected to be released in June 2025. Since both CiteScore and JIF are based on a simple ratio of citations by citable items, where both individual values are available from the respective database, it is easy to calculate the metrics even for the years when they were not officially released (Table 2). Also, the forecast of the values to be released in summer 2025 is now possible with high precision. For CiteScore, Scopus publishes a monthly CiteScoreTracker which asymptotically approaches the final value to be released in May 2025. The CiteScoreTracker monotonously increased over the past months and is now at 3.6. Web of Science does not have a forecast function, but since the JIF 2024 is based on citations in the year 2024 compared to citable items in the years 2022 and 2023, the information is already almost completely available from Web of Science. As of 12 January 2025, there were 120 citations to 44 citable items, resulting in a forecasted JIF of 2.7. Since not all articles from 2024 are indexed in the Web of Science, the final value will likely be slightly higher. Thus, both key bibliometric variables showed a significant positive trend over the past five years and the values for 2024 (published in summer 2025) will be quite satisfactory. Actually, the forecasts of both metrics now based on largely complete indexing of the relevant articles (CiteScore: 3.6; JIF: 2.7) are clearly higher than what we predicted merely based on correlations one year ago (CiteScore: 3.2; JIF: 1.6) (Dengler et al. 2024).

Table 2. Temporal trends in key bibliometric variables of VCS for the first five years, analysed with linear regressions. In the case of the CiteScore (Scopus), we took the published values for 2022 and 2023, the CiteScoreTracker for 2024 as of 5 January 2025. For the other CiteScores as well as for the Journal Impact Factors (Web of Science), which are not (yet) released officially, we calculated them ourselves, using the published numbers of citable articles and of citations from these databases (indicated in italics; for details, see text).

Year	Articles	Pages	Pages/article	CiteScore	JIF
2020	22	220	10.0	*0.4*	*0.0*
2021	25	310	12.4	*1.2*	*1.6*
2022	23	296	12.9	2.0	*1.5*
2023	25	360	14.4	2.5	*1.5*
2024	24	346	14.4	*3.6*	*2.7*
Annual trend	+0.4	+30	+1.1	+0.8	+0.5
p-value	0.408	0.055	0.016	< 0.001	0.049

We further used the Field-Weighted Citation Impact (FWCI) values from the Scopus database (https://www.scopus.com) to assess the relative impact of the 119 items published in VCS so far. Compared to "raw" citation numbers, FWCI has the advantage that it accounts (a) for the age of an article, (b) for different citations practices in different disciplines and (c) for different citation probabilities of different article types (e.g., reviews are typically more cited than research articles) (Elsevier 2022). Effectively, FWCI is a standardised citation number, where a value greater than one means that an item was more cited than an average item in this discipline in that year, while a value smaller than one refers to below-average citation numbers (Purkayastha et al. 2019). Thus, FWCI values allow

an efficient and meaningful comparison of articles from different years and subjects (Dengler 2024).

We downloaded the FWCI values on December 24th, 2024. In the case of 0 citations (which happened mainly for the most recent articles), we used 25% of the minimum value (i.e., for 1 citation) of that year to allow log-transformation. We call these modified FWCI values the adjusted FWCI (FWCI.adj). While the arithmetic mean of the FWCI was 0.75, the mean of the adjusted FWCI was 0.81. Since FWCI values are strongly right-skewed, we $\log_{10}$-transformed them for statistical modelling (see also Dengler 2024). We considered the following predictor variables: VCS article type, special collection (yes/no), year of publication, number of authors ($\log_{10}$-transformed), number of title words and number of pages ($\log_{10}$-transformed). Since the sample was too unbalanced between the different factors and also too small, unlike in Dengler (2024) no multiple regression was possible, but only a series of bivariate linear models.

We found that the article type was the strongest predictor of the log-transformed adjusted FWCI ($p < 0.001$; $R^2_{adj.} = 0.280$) (Table 3). Accordingly, the most cited article type was "VCS Methods", with an average FWCI of 5.16 (back-transformed from the log-transformed estimate). This is 9× more than average "Research Papers" (back-transformed FWCI estimate = 0.57) and even 40× more than the average in the least cited article type "Short Database Report" (back-transformed FWCI estimate = 0.13).

Among the tested predictor variables, the next most influential was the article length expressed as $\log_{10}$(pages) ($p < 0.001$; $R^2_{adj.} = 0.201$). The estimate of 0.696 means that a doubling of pages means 1.62 times more citation impact. The number of authors of an article had also a positive impact on FWCI ($p = 0.030$; $R^2_{adj.} = 0.032$; estimate = 0.301), with twice as many authors meaning 1.23 times more citation impact. Lastly, also articles from special collections turned out to be more impactful than regular articles ($p = 0.046$; $R^2_{adj.} = 0.025$; estimate = 0.199), with an estimated 1.58 times higher impact. These results are largely consistent with the findings by Dengler (2024) for a completely different set of articles. Only the number of title words and the year/volume did not have a significant effect on citation impact among the 119 articles tested.

Table 3. Differences in Field-Weighted Citation Impact (FWCI) between article types among the 119 articles published in the first five volumes of VCS. The ANOVA was conducted on the $\log_{10}$-transformed, adjusted FWCI values, and the homogenous groups based on Tukey's HSD test in the R package 'agricolae'. We report the estimates of the adjusted FWCI values, back-transformed to linear scale.

VCS article type	# papers	Estimate FWCI.adj	Homogenous group HSD
VCS Methods	3	5.16	a
Report	3	0.75	ab
Forum Paper	6	0.65	ab
Review and Synthesis	6	0.57	ab
Research Paper	54	0.57	b
Long Database Report	12	0.41	b
CCCN Report	2	0.39	b
Nomenclatural Proposal	12	0.18	b
Editorial	8	0.17	b
Short Communication	4	0.15	b
Short Database Report	9	0.13	b

Finally, we used the FWCI to identify the most-impactful papers in VCS so far. Among all 119 articles, 25 articles performed better than expected from the year of publication, subject area and article type, i.e., had an FWCI above 1. Nine of them even had an FWCI above 2, i.e. were cited more than twice as often than average articles in the respective subject areas (i.e. the SCOPUS categories "Agricultural and Biological Sciences (miscellaneous)", "Plant Science" and "Ecology, Evolution, Behavior and Systematics") (Table 4). Among

Table 4. The nine articles in Volumes 1–5 of VCS with a Field-Weighted Citation Impact of at least 2, meaning that they were cited at least twice as much as expected from an article of that year and article type in the respective subject area. Data retrieved from the Scopus database on 24 December 2024.

FWCI	Citations	VCS article type	Collection	Authors, year, volume	Title
15.05	41	VCS Methods		Dengler et al. 2023, vol. 4: 7–29	Ecological Indicator Values for Europe (EIVE) 1.0
4.03	11	VCS Methods		Dengler and Dembicz 2023, vol. 4: 131–138	Should we estimate plant cover in percent or on ordinal scales?
3.91	20	Review and Synthesis		Loidi et al. 2022, vol. 3: 231–271	Climatic definitions of the world's terrestrial biomes
2.57	7	Research Paper	Neotropical vegetation	Zeballos et al. 2023, vol. 4: 167–188	Vegetation types of the Arid Chaco in Central Western Argentina
2.57	7	Research Paper	African vegetation studies	Chakkour et al. 2023, vol. 4: 31–45	Plant diversity in traditional agroecosystems of North Morocco
2.41	26	Research Paper		Zeballos et al. 2020, vol. 1: 87–102	The lowland seasonally dry subtropical forests in central Argentina: vegetation types and a call for conservation
2.27	18	VCS Methods		Janišová et al. 2021, vol. 2: 19–35	Grassland with tradition: sampling across several scientific disciplines
2.16	22	Research Paper	Grasslands of Asia	Nowak et al. 2020, vol. 1: 191–217	Classification of tall-forb vegetation in the Pamir-Alai and western Tian Shan Mountains (Tajikistan and Kyrgyzstan, Middle Asia)
2.15	12	Research Paper	International Vegetation Classification	Luebert and Pliscoff 2022, vol. 3: 15–28	The vegetation of Chile and the EcoVeg approach in the context of the International Vegetation Classification project

these articles, Dengler et al. (2023) reached an FWCI of more than 15, i.e. almost four times more than the second and third article, both with an FWCI of about 4 (Table 4). Accordingly, in January 2025 both Scopus and Web of Science indicated that Dengler et al. (2023) is in the first percentile of the articles in the respective subject field. The top-9 articles include all three hitherto published VCS Methods papers, one Review and Synthesis paper and five Research Papers, four of them from special collections.

Outstanding papers in 2024

As in every year, the Chief Editors selected one Editors' Choice article per quarter, and from these four articles then the most outstanding one for the Editors' Award of the year. Together the selected articles represent the geographic and topical breadth of VCS and can serve as inspiration for authors considering preparing a manuscript for VCS.

For the Editors' Award 2024 we selected the Editors' Choice paper of the second quarter: Naftal et al. (2024), who classified the major plant units along a latitudinal transect in Namibia and modelled their potential distribution under climate change scenarios. This paper is part of the Special Collection 'African Vegetation Studies'. Leena Naftal and colleagues developed a numerical high-level classification of the (near) natural vegetation along a 1,400 km long and 30 km wide transect in Namibia based on nearly 2,000 plots of 1,000 m^2. They described the vegetation units and determined their diagnostic species. This alone would be a fantastic achievement in Africa, where modern broad-scale vegetation classifications are very scarce. However, instead of stopping at that point, the authors then used random forests to model the current distribution of these zonal vegetation types and project them into the future under different global change scenarios. They found that likely the *Combretum collinum-Terminalia sericea* broad-leaved savannas will expand a lot, while several other zonal vegetation types might go extinct by 2080 under high CO_2 emission paths. This is a well-conducted study based on an enormous wealth of data that demonstrates how vegetation classification can contribute substantially to global change research.

As the Editors' Choice in the first quarter, we selected Hájek et al. (2024). This awarded article from the Permanent Collection 'Phytosociological Nomenclature' proposed conserving the name *Philonotidion seriatae* Hinterland 1992 against the older name *Cardamino-Montion* Br.-Bl. 1925 to avoid the ambiguity of the latter, whose nomenclatural type is an alpine community while the two name-giving species mostly occur at lower altitudes. This paper is a good example of a formal nomenclatural proposal, a type of contribution that can exclusively be published in VCS. A publication in VCS is considered an official submission of a proposal to the Working Group for Phytosociological Nomenclature (GPN) of the International Association for Vegetation Science (IAVS).

As the Editors' Choice of the third quarter, we selected Gopar-Merino et al. (2024), included in the Special Collection 'Neotropical Vegetation'. The authors prepared a map of the natural vegetation of Mexico combining the bioclimatic classification of the country with a coarse formation typology of three main physiognomies (forest, shrubland, herbaceous and non-vascular vegetation). The combination of 13 bioclimates and 3 main plant formations led the authors to recognize 11 forest, 3 shrubland and 3 grassland types, mapped at a scale of 1:4,000,000. Among the described types, "Infra-thermo-meso-supratropical arid shrublands" are most widespread in Mexico.

Finally, as the Editors' Choice of the fourth quarter, we chose Maldonado-Fonkén et al. (2024), who studied wetland communities (*bofedal*) in the Peruvian Andes, along a 68 km longitudinal transect and using 127 1 m^2 plots. The authors described 13 *bofedal* communities, among which the most frequent community across both study area and elevational gradient was the *Distichia muscoides*-dominated community. This paper demonstrates the high diversity and heterogeneity of these community types from plot to regional scales. Like the previous paper, it is part of the Special Collection 'Neotropical Vegetation'.

Changes in the editorial team

The editorial team of VCS consists of Chief Editors, Associate Editors, Guest Editors, Linguistic Editors and the Editorial Review Board.

VCS had four Chief Editors during its first five years. Regrettably, Florian Jansen, one of the founding Chief Editors, resigned from his role at the end of 2024 due to new professional obligations that will take most of his time in the next few years. Among others, Florian led the inaugural editorial (Jansen et al. 2020) and is joint first author of our hitherto most impactful paper (Dengler et al. 2023). In recent years he had served as the Receiving Editor and thus greatly contributed to the successful initial period of VCS. We express our gratitude to Florian for these five years of dedicated service to the journal. However, we are happy that he will stay in our team as Associate Editor. So, thank you very much, Florian!

Moreover, three former members of the Editorial Review Board will serve as Associate Editors from 2025 onwards: Gwendolyn Peyre (Colombia), Ute Schmiedel (Germany), and Denys Vynokurov (Germany and Ukraine). With these additions VCS has increased its capacities for manuscript handling to a total of 15 Associate Editors.

Linguistic Editors are a rather unique feature offered by VCS. These are ecologists or botanists with English as their first language (or otherwise excellent knowledge of scientific English). When a paper has been accepted and nobody from the author team has English as a first language, the paper is reviewed for clarity and composition by one of our Linguistic Editors at no charge to the authors. Our team of Linguistic Editors from 2025 is reinforced by the incorporation of Meena Sritharan (Australia).

Finally, the Editorial Review Board is formed by experts from around the world who serve as our primary pool of reviewers. We are happy to announce that as of 2025 we appointed eight new members to the Editorial Review Board: Timo Conradi (Germany), Iwona Dembicz (Poland), Maria Fungomeli (Kenya), Corrado Marcenò (Italy), Salza Palpurina (Bulgaria), Remigiusz Pielech (Poland), Atushi Ushimaru (Japan) and Sebastián R. Zeballos (Argentina).

Conclusions and outlook

Our review on occasion of the fifth anniversary of the journal foundation suggests that Vegetation Classification and Survey is well on track. We publish a geographically and methodologically diverse content, covering all continents and studies ranging from plot-scale via remote-sensing based to formation and biome classifications. Also, the upward trajectories of the bibliometric performance measures make us optimistic for the future.

Based on the analysis of the journal's performance in its first five years, we would like to see more submissions in the category 'VCS Methods' as they constitute the most-cited content, demonstrating their utility to researchers, while at the same time making substantial contributions to the journal-level bibliometric indices. Also 'Review and Synthesis' papers can be quite influential as the one by Loidi et al. (2022) demonstrates. Here we could imagine more contributions that treat one topic comprehensively by summarizing and deriving a new consistent proposal from existing literature. Such a 'Review and Synthesis' paper could also be the overview of the vegetation types of an entire country or other large region. However, plot-based classification studies remain at the core of VCS. Here, we wish to encourage broad-scale classification studies based on large datasets. We already published several such papers from China, Namibia, Australia, Argentina, and a few European countries (Austria, Greece, Italy) but hope to see these in the future also from North America and other parts of Asia, Africa, South America and Europe as a whole.

It is evident that special collections constitute an important element of our journal, and we believe that they are crucial for the development of vegetation classification, especially in regions where it is still less developed. Three Editors' Awards went to Africa (2023, 2024) and China (2022), to papers belonging to the Special Collections 'African Vegetation Studies' and 'International Vegetation Classification'. Four additional top-9 cited papers come from Africa, Asia and South America. This, together with the recent creation of IAVS regional sections on these continents, brings hope for the future development of continental-scale classification systems in these regions, similar to the EuroVegChecklist (Mucina et al. 2016) in Europe, which is based on the Braun-Blanquet approach, or national vegetation classifications in North America (Franklin et al. 2012; Baldwin et al. 2019), China (Guo et al. 2020) and Australia (Muldavin et al. 2021), which are based on the EcoVeg approach. We are happy to see that several papers tried to establish links among both approaches (Willner and Faber-Langendoen 2021; Alvarez and Luebert 2022), and we hope to see more of this in the future. VCS wants to contribute to the development of vegetation classification around the world, possibly facilitating the convergence of classification systems into a common framework.

The application of vegetation classification in macroecology, diversity studies, vegetation mapping and niche modelling, among others, is an important facet of the journal. We think there is a wide field to explore here, and we would like to see more papers applying existing vegetation classifications to advance the knowledge of diversity, ecology and distribution of plant communities, preferentially in large-scale studies.

Author contributions

IB planned and wrote the Editorial, with JD contributing the bibliometric analyses and the respective section. All authors revised, improved and approved the manuscript.

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Appendix 1. Reviewers for VCS during 2024

We thank our reviewers during the last year who greatly contributed to the success of VCS. The number of reviews conducted is indicated in brackets.

Saeed Akhtar Abro (1)
Ken Aho (1)
Miguel Alvarez
Javier Amigo (2)
Dariia Borovyk (1)
Juan Antonio Campos (1)
Jorge Capelo (1)
Simona Casavecchia (1)
Romeo Di Pietro (1)
Marcin Dyderski (1)
Don Faber-Langendoen (1)
Enrico Feoli (1)
Antonio Galán de Mera (1)
François Gillet (3)
Yaroslav Golovanov (1)
Riccardo Guarino (3)
Richard Hrivnák (2)
Matias Köhler (1)
Andrew Korolyuk (1)
Anna Kuzemko (1)
Attila Lengyel (1)
Javier Loidi (1)
Federico Luebert (2)
Parastoo Mahdavi (3)
Cristian Adrian Martínez-Adriano (1)
Angie Carol Montenegro Hoyos (1)
Daniel B. Montesinos-Tubée (1)
Alireza Naqinezhad (1)
Michael P. Nobis (2)
Arkadiusz Nowak (2)
Jesús Orlando Rangel-Churio (1)
Kyle Palmquist (2)
Ricarda Pätsch (2)
Gwendolyn Peyre (1)
Remigiusz Pielech (2)
David W. Roberts (2)
Daniel Sánchez-Mata (2)
Manu Saunders (1)
Urban Šilc (2)
Sebastian Świerszcz (1)
Massimo Terzi (1)
Jean-Paul Theurillat (1)
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Supplementary material

Supplementary material 1
The 119 articles published in the first five volumes of VCS with their bibliometric and methodological descriptors used in the analyses presented (xlsx)
Link: https://doi.org/10.3897/VCS.148065.suppl1